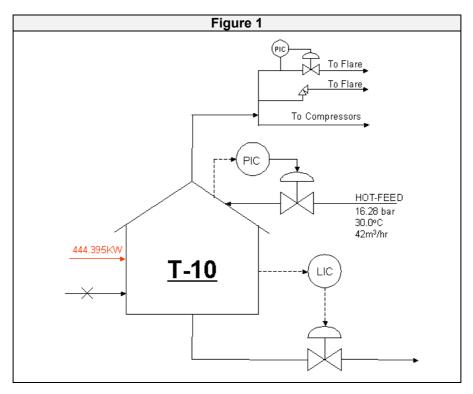
Dynamic Simulation for T-10 Storage Tank (Holding Case)

Workshop Description

- Estimation of vapor flow rate coming out from the T-10 tank for holding case (52°C) using dynamic simulation.
- Schematic diagram for T-10 tank holding case is shown below in Figure 1.



• Feed conditions and compositions for stream NGL-TOT & HOT-FEED are shown in Table 1.

Table 1				
Stream	NGL-TOT	HOT-FEED		
Temperature (°C)	-43.0	42.0		
Pressure (bar)	1.50	16.28		
Component				
Ethane	0.020	0.020		
Propane	0.976	0.976		
Iso-butane	0.003	0.003		
N-butane	0.001	0.001		
Flowrate	6,900 Kmole/hr	42m ³ /hr		

Building a Steady State Simulation for T-10 tank.

• Open the Component List View.

Add Components	Selected Components	_		e in the Component Library		
Traditional	Propane i-Butane		Match		View Filters	
Electrolyte	n-Butane	_	G Sim Name	C Full Name / Synonym	C Formula	
 Hypothetical Other 		<add pure<="" td=""><td>Methane (</td><td>3</td><td>CH4</td><td></td></add>	Methane (3	CH4	
			n-Pentane r	05 +05	C5H12 C5H12	
		<-Substitute->	n-Hexane (6	C6H14	
		<-30000008-7	n-Heptane (6 77 28 29	C7H16	
			n-Octane 0 n-Nonane 0	28	C9H18 C9H20	
		Remove>	n-Decane (10	C10H22	
			nC11 (31	C11H24	
		Sort List	n-C12 (12	C12H26	
				713 714	C13H28 C14H30	
		Man Comment		15	C15H32	
		View Component	n-C16 (:16	C16H34	•
			Show Synoryms	Cluster		
	10					
Selected Compo	nent by Type					

• Open the Fluid Package View.

Fluid Package: Basis-1		
Property Package Selection (none) GCE05 Kabad Danner Lee-Kseler Plocker MBWR PRSV Sour PR Sour SRK SRK Zudkevitch Joffee	Property Package Filter C All Types C EDSs C Activity Models C Vapour Press Models C Vapour Press Models C Miscellaneous Types	EDS Enhalpy Method Specification C Eguation of State C Lee-Kesley Peng Robinson Options C HYSYS C Standard Use EDS Density S Smooth Liquid Density
Component List Selection	Vie	-Advanced Thermodynamics
	nary Coeffs StabTest Phase I sis-1 Property Pkg	Order Rxns Tabular Notes Edit Properties

• Selecting a Unit Set.

Carl Session Preferent Variables Units Formats	Available Unit Sets CJH-1 EuroSI Field NewUser Unit Set Name CJH-	1		Clone Delete View Users
	Display Units Vapour Fraction Temperature Pressure Flow Mass Flow	Unit Unitles (ba kgmole/1 kg/l		View Add Delete
Simulation Vari		Resources Extensions	<u>Oil Input</u> Lo <u>a</u> d Pre	Tray Sizing

Adding Streams

In HYSYS, there are two types of streams, Material and Energy . Material streams have a composition and parameters such as temperature, pressure and flow rate. They are used to represent Process Streams. Energy streams have only one parameter, Heat Flow. They represent heating and cooling duties in a plant we well as power to drive pumps and compressors.

Entering Stream conditions and compositions for streams TOT-NGL & HOT-FEED.

Worksheet	Stream Name	TOT-NGL		
	Vapour / Phase Fraction	0.00000		
Conditions	Temperature [C]	-43.000		
Properties	Pressure [bar]	1.5000		
Composition	Molar Flow [kgmole/h]	1.0000		
	Mass Flow [kg/h]	43.873		
K Value	Std Ideal Liq Vol Flow [m3/h]	8.7044e-002		
User Variables	Molar Enthalpy [Btu/lbmole]	-5.462e+004		
Notes	Molar Entropy [UserUnit*]	64.625		
10.00	Heat Flow [kcal/h]	-3.0366e+04		
Cost Parameters	Liq Vol Flow @Std Cond [barrel/day]	13.084		
	Fluid Package	Basis-1 💌		
		•		
Worksheet 4	Attachments Dynamics			

TOT-NGL	
Worksheet Conditions Properties Composition K Value User Variables Notes Cost Parameters	Mole Fractions Ethane 0.020000 Propane 0.376000 i·Butane 0.003000 n·Butane 0.001000 I Image: Constraint of the second
Worksheet A	tachments Dynamics
	OK
Delete	Define from Other Stream 🗧 🕈

HOT-FEED		
Worksheet	Stream Name	HOT-FEED
	Vapour / Phase Fraction	0.00000
Conditions	Temperature [C]	30.000
Properties	Pressure [bar]	16.280
Composition	Molar Flow [kgmole/h]	482.52
	Mass Flow [kg/h]	21169
K Value	Std Ideal Liq Vol Flow [m3/h]	42.000
User Variables	Molar Enthalpy [Btu/Ibmole]	-5.118e+004
Notes	Molar Entropy [UserUnit*]	94.189
Notes	Heat Flow [kcal/h]	-1.3730e+07
Cost Parameters	Liq Vol Flow @Std Cond [barrel/day]	6313.3
	Fluid Package	Basis-1 🝸
		► I
Worksheet A	ttachments Dynamics	
	ОК	
Delete	Define from Other Stream	_ ← ⇒

HOT-FEED				
Worksheet	Mole Fractions			
Conditions	Propane 0.976000			
Properties	i-Butane 0.003000 n-Butane 0.001000			
Composition				
K Value				
User Variables				
Notes				
Cost Parameters	Total 1.00000			
	Edit Properties Basis			
Worksheet	ttachments Dynamics			
	OK			
Delete	Define from Other Stream 🛛 🔶 🜩			

• For VLV-100 (Connection Tab)

₩ VLV-100		<u>- 0 ×</u>
Design Connections Parameters	Name VLV-100	
User Variables	N	
Notes	Injet Ogliet TOT3-NGL TOT-NGL-FEED T	
	Fluid <u>P</u> ackage Basis-1	
Design Rating	Worksheet Dynamics	
Delete	Unknown Delta P	Ignored

• For VLV-100 (Parameters Tab)

₩ VLV-100	
Design Connections Parameters User Variables Notes	
Design Rating Worksheet Dynamics	
OK	Ignored

• For VLV-101 (Connection Tab)

₩ VLV-101		<u>_ ×</u>
Design	Name VLV-101	
Connections Parameters		
User Variables Notes		
	HOT-FEED	
	Fluid Package Basis-1	
Design Rating	Worksheet Dynamics	
Delete	Unknown Delta P	Ignored

• For VLV-101 (Parameters Tab)

₩ VLV-101		
Design Connections Parameters User Variables Notes	Delta P 221.284 psi	
Design Rating	Worksheet Dynamics OK	

• For VLV-102 (Connection Tab)

₩ VLV-102		
Design Connections	Name VLV-102	
Parameters User Variables Notes	Injet Ogliet	
	Fluid <u>P</u> ackage Basis-1	
Design Rating	Worksheet Dynamics Unknown Delta P	Ignored

• For VLV-102 (Parameters Tab)

₩ VLV-102		_ 🗆 🗙
Design Connections Parameters User Variables Notes	Deta P 0.493128 psi	
Design Rating	Worksheet Dynamics	
Delete	ок 🗖	<u>Ig</u> nored

• For VLV-103 (Connection Tab)

 VLV-103 		<u>_ ×</u>
Design	Name VLV-103	
Connections	Name VLV-103	
Parameters		
User Variables		
Notes	Injet Outlet	
	Fluid <u>P</u> ackage Basis-1	
Design Rating	Worksheet Dynamics	
Delete	Unknown Delta P	Ignored

• For VLV-103 (Parameters Tab)

₩ VLV-103		- I ×
Design		
Connections	Delta P 0.435113 psi	
Parameters		
User Variables		
Notes		
Design Rating	Worksheet Dynamics	
Delete	ОК	Ignored

• For VLV-104 (Connection Tab)

M VLV-104		
Design Connections	Name VLV-104	
Parameters User Variables Notes	Injet T9V3 T T9V6 T	
	Fluid Package Basis-1	
Design Rating	Worksheet Dynamics Unknown Delta P	

• For VLV-104 (Parameters Tab)

VLV-104				_ 🗆 ×
Design				
Connections	Delta P	0.493128 psi		
Parameters				
User Variables			>	
Notes				
=				
Design Rating Wo	rksheet Dynami	ics		
Delete		OK		

• For RV-100 (Connection Tab)

💐 RV-100		
Design	Name RV-100	
Connections		
Parameters		
User Variables		
Notes	Injet Outlet T9-V2 ▼ T9-V5 ▼	
	Fluid <u>P</u> ackage Basis-1	
Design Rating	Worksheet Dynamics	
Delete	Unknown Product Stream Pressure	lgnored

• For RV-100 (Parameters Tab)

Set Pressure 1.075 Full Open Pressure 1.177	
) Worksheet Dynamics	Ignored
	Set Pressure Full Open Pressure 1.075 1.177

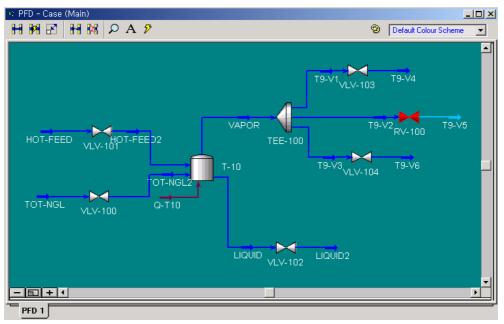
• For T-10 (Connection Tab)

📕 T-10		<u> </u>
Design Connections Parameters User Variables Notes Design Reaction	Name T-10 Injets Injets Vapour Outlet VAPOR Constrained by the set of the se	
Delete	Unknown Duty	Ignored

• For T-10 (Parameters Tab)

T-10		_ 🗆 ×
Design		
Connections	Delta P	
Parameters	0.0000 psi Volume	
User Variables		
Notes	MANNA '	
	Heating C Cooling	
	Duty 3.8237e+05 kcal/h	
	Type C Segarator C <u>3</u> Phase Sep © Tan <u>k</u>	
Design React	ions Rating Worksheet Dynamics	
Delete	ОК	

- Save your case as T10-Holding-52C-Steady.hsc.
- Flowsheet Configuration (1)



Transitioning from Steady State to Dynamics

All unit operations in the simulation need to be sized using actual plant equipment or predetermined sizing techniques. Vessels should be sized to accommodate actual plant flow rates and pressures while maintaining acceptable residence times.

- Sizing the Valves
 - Valve type (linear, quick opening or equal percentage)
 - The normal valve opening position
 - The pressure drop across the valve
 - The current flow rate

₩ VLV-100		
Rating	-Sizing Conditions	
Sizing (dynamics	Inlet Pressure [bar] 1.500 Molecular Weight 43.87	
	Valve Opening [%] 50.00	
	Delta P [psi] 6.831 © Current Flow Rate [kg/h] 43.87 © User Input	
	Valve Type and Sizing Method	
	C Quick Opening C1 25.0 C Equal Percentage Km 3.585e-002	
	Cv [USGPM] 0.1975 Size Valve Cg 4.9365	
Design Rating	Worksheet Dynamics	
Delete	OK	🔲 🗌 Ignored
× VLV-101		
	-Sizing Conditions	
Rating Sizing (dynamics	Inlet Pressure [bar] 16.28	
Sizing (uynamics	Molecular Weight 43.87	
	Delta P [psi] 221.2 Current	
	Flow Rate [kg/h] 2.117e+004 C User Input	
	Valve Type and Sizing Method C Linear Method: C C C C C C K	
	O Quick Opening C1 25.0	
	C Equal Percentage Km 3.585e-002 Cv [USGPM] 41.66	
	Size Valve Cg 1041.5	
Design Rating	Worksheet Dynamics	
Delete	OK	🔲 🗌 Ignored
N 1011 100		
× VLV-102		
Rating	Sizing Conditions Inlet Pressure [bar] 1.029	
Sizing (dynamics	Molecular Weight 44.14	
	Valve Opening [%] 50.00 Delta P (psi) 0.4931	
	Flow Rate [kg/h] 8428 O User Input	
	Valve Type and Sizing Method C Linear Method: C C C C C C k	
	C Quick Opening C1 25.0	
	C Equal Percentage Km 3.585e-002 Cv [USGPM] 138.7	
	Size Valve Cg 3468.5	
Design Rating	Worksheet Dynamics	
Delete	OK	🔲 🗌 Ignored
N VI V 102		
₩ VLV-103		
Rating	Sizing Conditions Inlet Pressure [bar] 1.029	
Sizing (dynamics	Molecular Weight 43.70	
	Valve Opening [%] 50.00 Delta P (psi) 0.4351	
	Flow Rate [kg/h] 3835 O User Input	
	Valve Type and Sizing Method	
	C Quick Opening C1 25.0	
	C Equal Percentage Km 3.585e-002 Cv [USGPM] 1014	
	Cg 25361	
Design Rating	Worksheet Dynamics	

₩ VLV-104			_ 🗆 🗡
	Sizing Conditions		
Rating	Inlet Pressure [bar]	1.029	
Sizing (dynamics	Molecular Weight	43.70	
	Valve Opening [%]	1 50.00	
	Delta P [psi]	0.4931 Current	
	Flow Rate [kg/h]	5114 C User Input	
	Valve Type and Sizing Meth	od	
	Linear	Method: O Cv 💿 Co, O k	
	C Quick Opening	Km 3.585e-002	
	C Equal Percentage	Cv [USGPM] 1276	
	Size Valve	Cg 31897	
Design Rating	Worksheet Dynamics		
Delete		ΠK	Ignored
		UK	1 Ignored
💐 RV-100			<u>- 0 ×</u>
Rating	-Valve Type		
	Quick Opening	Linear C Equal Percentage	
Sizing	- amon opposing -		
	Capacity Correction Factors	and Parameters	
	Viscosity Coefficient	1 1.000	
	Discharge Coefficient	1.000	
	Back Pressure Coefficient	1.000	
	Valve Head Differential Co		
	Orifice Area	2.4509	
Design Rating	Worksheet Dynamics		
Delete	Va	alve is Open	Ignored

Note that the normal valve opening percent of VLV-102 should be 0.0 percent instead of 50.0 percent for a holding case.

- Sizing the Separator
 - Open the dynamic tab of the separator.
 - Enter 182.1 ft for a vessel diameter and 78.74 ft for vessel height.

👤 T-9		_ 🗆 🗡
Rating Sizing Heat Loss	Cyclinder Volume(13) Coste + 000 Sphere Volume(13) This separator has a boot	<u>Q</u> uick Size <u>₩</u> eir
DesignReacti	ons Rating Worksheet Dynamics	
Delete	ОК	Ignored

• Save your case as T10-Holding-52C-Sizing.hsc.

Making Pressure-Flow and Dynamics Specifications

- Analysis of the Process Flowsheet
 - For the current simulation, the boundary streams are TOT-NGL, HOT-FEED, LIQUID2, T9-V3, and T9-V4. All boundary streams in the Flowsheet must have a pressure specification.
 - On the Dynamics tab of the TOT-NGL, HOT-FEED, LIQUID2, T9-V4, T9-V5 and T9-V6, select the Pressure Specification by checking the box Active.

TOT-NGL	>
Dynamics Specs Stripchart	Dynamic Specifications Pressure Specification Pressure Active 1.500 bar
	Flow Specification Molar C Mass C Ideal LiqVol C Std. LiqVol Molar Flow Active 6900 kgmole/h
	Feeder block
Worksheet At	tachments Dynamics
Delete	OK Define from Other Stream 💠 🜩

HOT-FEED	
Dynamics Specs Stripchart	Dynamic Specifications Pressure Specification Pressure Active 16.28 bar
	Flow Specification
	⊂ Molar ⊂ Mass ⊙ Ideal LiqVol ⊂ Std. LiqVol
	Ideal Liquid Volume Flow Active
	Feeder block
Worksheet At	tachments Dynamics
	OK
Delete	Define from Other Stream 🔶 🜩

LIQUID2	
Dynamics Specs Stripchart	Dynamic Specifications Pressure Specification Pressure Active 0.9950 bar
	Flow Specification Molar C Mass C Ideal LiqVol C Std. LiqVol Molar Flow Active 191.0 kgmole/h
	Product block
At	tachmentsDynamics
	OK
Delete	Define from Other Stream 🔶 🜩

[→] T9-V4	
Dynamics Specs Stripchart	Dynamic Specifications Pressure Specification Pressure Active 1.438 bar ✓ Flow Specification Molar C Mass C Ideal LiqVol C Std. LiqVol Molar Flow Active 58.06 kgmole/h Product block
Worksheet At	tachments Dynamics
	OK
Delete	Define from Other Stream 🔶 🕈 🖨

² T9-V5	
Dynamics Specs Stripchart	Dynamic Specifications Pressure Specification 0.9950 bar Flow Specification Molar C Mass C Ideal LiqVol Molar Flow Active 58.06 kgmole/h
Worksheet Att	achments Dynamics
	OK
Delete	Define from Other Stream 🛛 🔶 🜩

T9-V6 Dynamics	Dynamic Specifications Pressure Specification
Specs Stripchart	Pressure Active 0.9950 bar
	Flow Specification Molar C Mass C Ideal LiqVol C Std. LiqVol Molar Flow Active 117.0 kgmole/h
	Product block
Worksheet /	Attachments Dynamics
Delete	Define from Other Stream 💠 🖨

• Save your case as T10-Holding-52C-Specs.hsc.

Controllers

- Controllers can added to the Flowsheet using the same methods as for other unit operations. The PID Controller button on the palette represents this unit operation. Once the Controller has been added to the Flowsheet.
 - Make the necessary connections for the Process Variable Source and Output Target Object.
 - Select the Minimum and Maximum values for the Process Variable. These values should bracket all possible PV values.
 - Size the valve controller range. This is not necessary if a valve was chosen as the Output Target Object.
 - Select Controller Action, Reverse or Direct.
 - Input Controller Tuning Parameters.
 - If desired, choose the mode of the controller, Off, Manual, or Automatic.
- Add the Proposed Control Strategy for the Flash Drum System
 - Table 2 **Controller Settings** Connections **Controller Name PIC-100** Process Variable Source Stream TOT-NGL Pressure **Output Target Variable** VLV-100 **Parameters** Action Direct PV Minimum 1.1 bar PV Maximum 2.1 bar Mode Auto Set Point 1.50 bar Kc 1 5 Ti
- Add a Flow Controller that will control the Stream TOT-NGL Flowrate to Tank T-10.

- Insert a Controller Face Plate for monitoring by pressing the Face Plate button on the property view.

PIC-100		×
Exec:Int	Sp:	L
PV: 1500	0 bar	
OP: 50.00	_	
Auto	-	T <u>u</u> ning

PIC-100	_	
Name PIC-100		
Process Variable So Object: TOT-NO Variable: Pressure	GL Select PV	
Optional <u>R</u> emote Setpoin	-Output Target Object	
Connections F	Parameters Monitor Stripchart User Variables Unknown Ranges for PV Face Plate Control Valy	
PIC-100		. <u> ×</u>
Parameters Configuration Advanced Autotuner IMC Design Scheduling Alarms	Operational Parameters Action: C SP Mode: C Mode Auto Execution Internal SP 1.500 bar PV 1.500 bar OP 79.40 %	
PV Conditioning Signal Processing FeedForward	Current Typing Kc 1.00 Ti 5.00 Td <empty> Range 1.000 has</empty>	
Connections P	PV Minimum 1.1000 bar PV Maximum 2.1000 bar arameters Monitor Stripchart User Variables	
	OK	

- Add another controller to control the pressure inside the Separator.

Table 3			
Cor	ntroller Setting		
Connections	Connections		
Controller Name	PIC-101		
Process Variable Source	Separator, T-9 Vessel Pressure		
Output Target Variable	VLV-101		
Parameters			
Action	Reverse		
PV Minimum	0.7 bar		
PV Maximum	1.7 bar		
Mode	Auto		
Set Point	1.029 bar		
Kc	1		
Ti	5		

- Insert a Face Plate for Tank-PC.

PIC-101 Exec: Int Sp: L PV: 1.0290 bar OP: 50.00 Auto I J	× I	
PIC-101		
Name PIC-101		
_ ,		
Process Variable So Object: T-9 Variable: Vessel	Sele	et P <u>V</u>
	\sim	
P	⊻→()	
Optional		t Target Object
<u>R</u> emote Setpoir	nt Source	
1	sp	Select OP
	Parameters Monitor Strinch	art User Variables
	Parameters Monitor Stripch	
	Unknown Ranges for PV	
Connections Delete		
Delete	Unknown Ranges for PV	Control Vajve
	Unknown Ranges for PV	
Delete PIC-101 Parameters	Unknown Ranges for PV	Control Vajve
Delete PIC-101 Parameters Configuration	Unknown Ranges for PV	Control Vajve
Delete PIC-101 Parameters Configuration Advanced	Unknown Ranges for PV Face Plate Operational Parameters Action: © Reverse SP Mode: © Local Mode	Control Vajve
Delete PIC-101 Parameters Configuration Advanced Autotuner	Unknown Ranges for PV Face Plate Operational Parameters Action: © Reverse SP Mode: © Local Mode Execution	Control Valve
Delete PIC-101 Parameters Configuration Advanced Autotuner IMC Design	Unknown Ranges for PV Face Plate Operational Parameters Action: © Reverse SP Mode: © Local Mode	Control Vajve
Delete PIC-101 Parameters Configuration Advanced Autotuner	Unknown Ranges for PV Face Plate Operational Parameters Action: © Reverse SP Mode: © Local Mode Execution SP	Control Vajve
Delete PIC-101 Parameters Configuration Advanced Autotuner IMC Design Scheduling Alarms	Unknown Ranges for PV Face Plate Operational Parameters Action: Reverse SP Mode: Execution SP PV OP	Control Vajve
Delete PIC-101 Parameters Configuration Advanced Autotuner IMC Design Scheduling Alarms PV Conditioning	Unknown Ranges for PV Face Plate Operational Parameters Action: © Reverse SP Mode: © Local Mode Execution SP PV OP Current Tuning	Control Vajve
Delete PIC-101 Parameters Configuration Advanced Autotuner IMC Design Scheduling Alarms	Unknown Ranges for PV Face Plate Operational Parameters Action: Reverse SP Mode: Execution SP PV OP	Control Vajve
Delete PIC-101 Parameters Configuration Advanced Autotuner IMC Design Scheduling Alarms PV Conditioning	Unknown Ranges for PV <u>Face Plate</u> Operational Pagameters Action: © Reverse SP Mode: © Local Mode Execution SP PV OP Current Tuning Kc	Control Valve C Direct C Bremote Auto Internal 1.029 bar 50.00 %
Delete PIC-101 Parameters Configuration Advanced Autotuner IMC Design Scheduling Alarms PV Conditioning Signal Processing	Unknown Ranges for PV Face Plate Operational Parameters Action: Reverse SP Mode: Execution SP PV OP Current Tuning Kc II	Control Valye C Direct C Bemote Auto Internal I.029 bar 50.00 %
Delete PIC-101 Parameters Configuration Advanced Autotuner IMC Design Scheduling Alarms PV Conditioning Signal Processing	Unknown Ranges for PV Face Plate	Control Valye C Direct C Bemote Auto Internal I.029 bar 50.00 %
Delete PIC-101 Parameters Configuration Advanced Autotuner IMC Design Scheduling Alarms PV Conditioning Signal Processing	Unknown Ranges for PV Face Plate Operational Parameters Action: Reverse SP Mode: Execution SP PV OP Current Tuning Kc II	Control Vajve
Delete PIC-101 Parameters Configuration Advanced Autotuner IMC Design Scheduling Alarms PV Conditioning Signal Processing	Unknown Ranges for PV Face Plate Operational Parameters Action: Reverse SP Mode: SP Mode: Execution SP PV DP Current Tuning Kc J Ti Td Range PV Minimum PV Maximum	Control Vajve
Delete PIC-101 Parameters Configuration Advanced Autotuner IMC Design Scheduling Alarms PV Conditioning Signal Processing FeedForward	Unknown Ranges for PV Face Plate Operational Parameters Action: Reverse SP Mode: Local Mode Execution SP PV OP Current Tuning Kc Ti Td Range PV Minimum J	Control Vajve
Delete PIC-101 Parameters Configuration Advanced Autotuner IMC Design Scheduling Alarms PV Conditioning Signal Processing FeedForward	Unknown Ranges for PV Face Plate	Control Vajve

- Add a Level Controller to control the level of liquid in the tank.

Table 4 Controller Settings		
Controller Name	LIC-100	
Process Variable Source	Separator, T-9 Liquid Percent Level	
Output Target Variable	VLV-102	

Parameters		
Action	Direct	
PV Minimum	0 percent	
PV Maximum	100 percent	
Mode	Auto	
Set Point	0 %	
Kc	1	
Ti	2	

LIC-100 ⊠ Exec:Int Sp: L PV: 50.000 OP: 50.00 Auto ▼ Tuning

● LIC-100	_ 🗆 X
Name LIC-100	
Process Variable Source Object: T-9 Select PV Variable: Liquid Percent Level	
Optional Bemote Setpoint Source	
▼	
SP Select OP	
Connections Parameters Monitor Stripchart User Variab	
Unknown Ranges for PV	
Delete Face Plate Control V	/ajve

LIC-100		<u>_ ×</u>
Parameters Configuration	Operational Parameters Action: O Reverse SP Mode: O Local	
Advanced Autotuner IMC Design Scheduling Alarms PV Conditioning Signal Processing FeedForward	Mode Execution SP PV	Auto · · · · · · · · · · · · · · · · · · ·
	Current T <u>u</u> ning	0.00 %
	Ti Td Range	2.00 <empty></empty>
	PV Minimum PV Maximum	0.0000 %
Connections Parameters Monitor Stripchart User Variables OK		
Delete	Face Plate	Control Vajve

- Add a Level Controller to control the level of liquid in the tank.

Table 5 Controller Settings Connections						
					Controller Name	PIC-102
					Process Variable Source	Stream, T9-V1 Liquid Percent Level
Output Target Variable	VLV-103					
Parameters						
Action	Direct					
PV Minimum	0.0981 bar					
PV Maximum	2.1575 bar					
Mode	Auto					
Set Point	1.05 bar					
Кс	1					
Ti	5					



PIC-102
Name PIC-102
Process Variable Source Object: T9-V1 Variable: Pressure
PV OP Optional Remote Setpoint Source
Connections Parameters Monitor Stripchart User Variables
Unknown Ranges for PV
Delete Face Plate Control Vajve

PIC-102		
Parameters	Operational Parameters Action: C Reverse	 Direct
Configuration	SP Mode: C Local	C Remote
Advanced	Mode	Auto
Autotuner	Execution	Internal T
IMC Design	SP	1.050 bar
-	PV	1.029 bar
Scheduling		50.00 %
Alarms	Current Tuning	
PV Conditioning		
Signal Processing	Kc J	1.00
FeedForward	Td	<empty></empty>
	Range	
	PV Minimum	0.0981 bar
	PV Maximum	2.1575 bar
Connections Parameters Monitor Stripchart User Variables		
	OK	
Delete	Face Plate	Control Valve

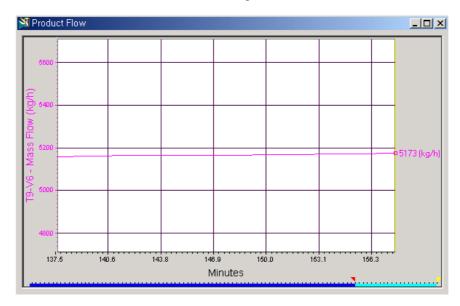
• Save your case as T10-Holding-52C-Controllers.hsc.

Strip Charts

While the Flowsheet is now running dynamically, it is difficult to observe the simulation variables. Using a strip chart allows the user to observe several variables in real time as the dynamic simulation runs.

- Press the hot key (Ctrl><D> to create a strip chart.
- Select the Variables page and press the Insert button.
- Add the following two variables.
 - TOT-NGL Mass Flow
 - HOT-Feed Mass Flow
- Select the Strip Charts page tab.
- Change the name to Feed System.
- Add the following three variables.
 - T9-V4 Mass Flow
 - T9-V5 Mass Flow
 - T9-V6 Mass Flow
- Select the Strip Charts page tab.
- Change the name to Product Vapor Stream.
- Add the following variable.
 - LIQUID2 Mass Flow
- Select the Strip Charts page tab.
- Change the name to Product Liquid Stream.
- Add the following variable.
 - T-10 Vessel Pressure
- Select the Strip Charts page tab.
- Change the name to T10 Vessel Pressure
- Save your case as T10-Holding-52C-Dynamics-0.hsc.

View Results



• T9-V6 Stream Mass Flowrate = 5,173 Kg/hr